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BENTHIC POLYCHAETOUS ANNELIDS FROM BERING, CHUKCHI, AND BEAUFORT SEAS

By DONALD J. REISH

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BENTHIC POLYCHAETOUS ANNELIDS FROM BERING, CHUKCHI, AND BEAUFORT SEAS[1]

By DONALD J. REISH[2]

Introduction

The earlier accounts on the study of the polychaetous annelids in Alaskan waters have been summarized by Hartman (1948). Since this date, several papers dealing with the polychaetes of Alaska or adjoining regions have appeared. Pettibone (1954) recorded 88 species from Point Barrow, Alaska. The monograph by Uschakov (1955) of the polychaetes of the Far Eastern seas is of particular value for work in Alaskan waters. The series of papers by Berkeley and Berkeley (1956, 1957, 1958, and 1960) have records of species for Alaska as well as British Columbia. Pelagic and benthic polychaetes collected from floating ice islands in the Arctic Ocean have been reported by Uschakov (1957) and Knox (1959). Levenstein (1960) listed 48 species from the western Bering Sea, 19 of which are reported herein. Seven species of polychaetes were found in a marine pond at Point Barrow, Alaska (Mohr et al, 1961).

[1] These studies were aided in part by contracts between the Office of Naval Research, Department of the Navy, and the University of Southern California; and between Dr. John L. Mohr, University of Southern California, and the Arctic Institute of North America.

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Since the offshore waters of Alaska have been investigated to a limited extent, quantitative collections made by John Tibbs in the Bering and Chukchi Seas have been particularly rewarding. Smaller collections made by R. Lavenberg from a floating ice island in Chukchi and Beaufort Seas and by the author in Beaufort Sea have been included in this report.

I am indebted to many people and organizations for their assistance during the course of this study (see footnote 1). I wish to express thanks to John Tibbs and R. Lavenberg for making most of these collections. Particular thanks are due the U.S. Coast Guard for permitting me to spend five days aboard the icebreaker U.S.S. *Northwind* in August 1953 to make bottom collections. I wish also to thank Dr. John L. Mohr, who introduced me to the Arctic biology and who made it possible to complete this study.

MATERIALS AND METHODS.—Collections from the Bering and Chukchi Seas (Stations 5–60) were made by John Tibbs, University of Southern California, from R/V *Hugh M. Smith* in the summer of 1960 (see table 1 and fig. 1). The majority of the samples were taken with a Dietz-Lafond snapper, but some samples were taken with a small Hayward orange-peel bucket and by aqualung diving. The collections for Stations A–F and G–1 to G–6 were made by R. Lavenberg, University of Southern California, in the spring of 1960 from the ice island Bravo utilizing a small orange-peel bucket (Stations G–1 to G–6) and a biological dredge (Stations A–F). Collections from the Beaufort Sea (Stations R–1 to R–4) were made by me in August 1953 from the U.S. Coast Guard icebreaker *Northwind*. Samples were taken with either a Dietz-Lafond snapper or a small Hayward orange-peel bucket.

The method of preservation varied according to conditions and the preservative available. Mr. Tibbs washed samples through fine screens to retain, as much as possible, the smaller organisms. Sediment analysis was done by the personnel at the U.S. Naval Electronic Laboratory in San Diego. Sediment terminology follows the size classification of Udden-Wentworth (Barnes, 1959).

All material on which this study is based, including holotypes and paratypes, has been deposited in the U.S. National Museum.

FIGURE 1.—Station locations: stations 5–60 collected by John Tibbs from R/V *Hugh M. Smith*, July, August 1960; stations A–F dredged by R. Lavenberg from ice island drift station Bravo, April, May 1960; station G, 6 bottom samples taken by R. Lavenberg from drift station Bravo, May–August 1960; station R, 4 bottom samples taken by author from U.S. Coast Guard icebreaker *Northwind* August 1953.

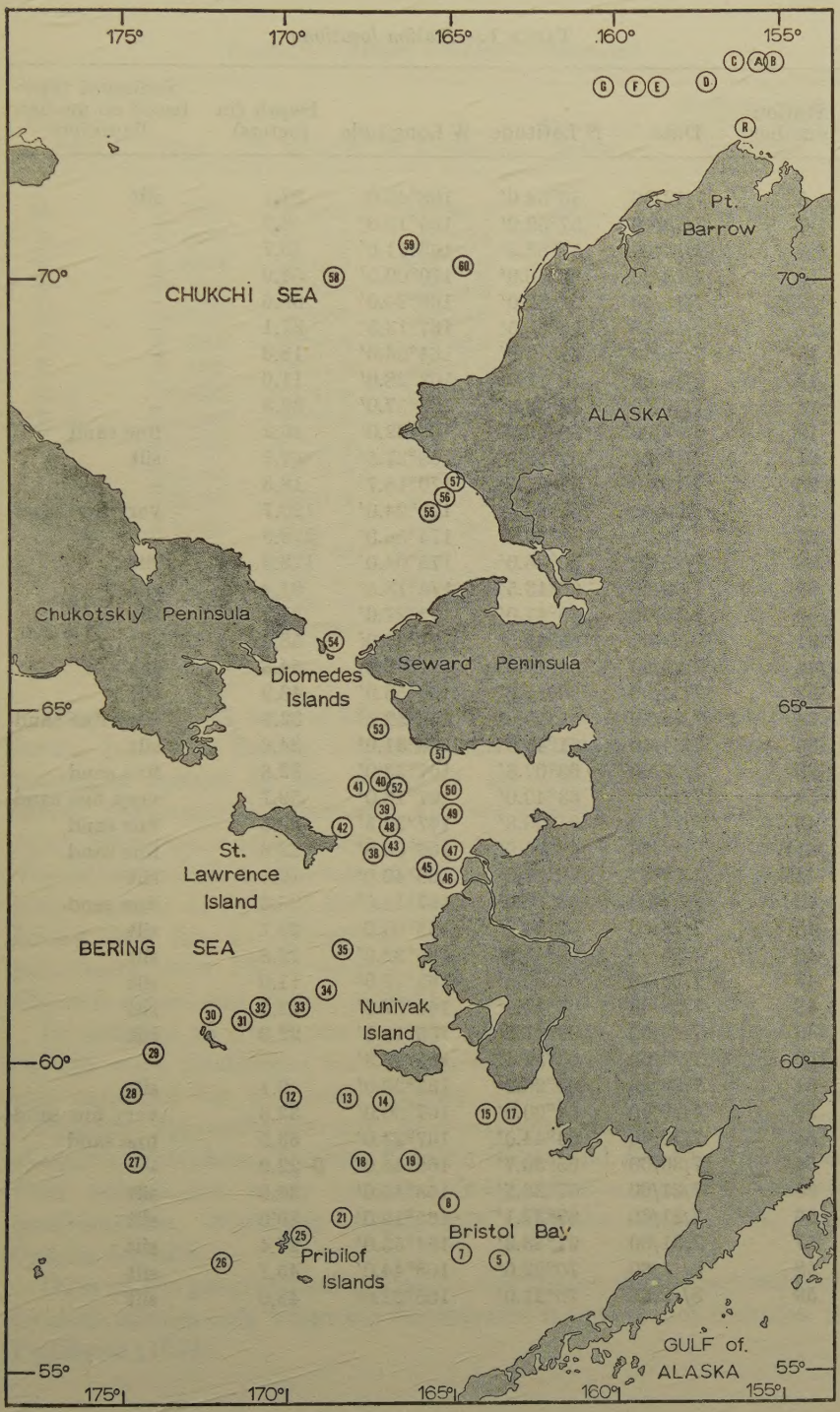
175°
170°
165°
160°
155°
70°
65°
60°
55°
CHUKCHI SEA
Pt. Barrow
ALASKA
Chukotskiy Peninsula
Diomedes Islands
Seward Peninsula
St. Lawrence Island
BERING SEA
Nunivak Island
Bristol Bay
Pribilof Islands
GULF of. ALASKA

TABLE 1.—*Station locations*

Station number	Date	N Latitude	W Longitude	Depth (in meters)	Sediment type based on median diameters
5	7/12/60	56°54.0′	163°45.0′	67.1	silt
7	7/13/60	57°52.0′	165°12.0′	43.9	–
8	7/13/60	57°52.3′	165°11.0′	45.7	–
12	7/15/60	59°30.0′	170°00.0′	54.9	–
13	7/15/60	59°29.0′	168°24.0′	36.6	–
14	7/15/60	59°25.5′	167°13.5′	31.1	–
15	7/16/60	59°15.0′	164°04.0′	18.3	–
17	7/16/60	59°17.0′	163°28.0′	11.0	–
18	7/17/60	58°33.6′	165°57.0′	32.8	–
19	7/17/60	58°29.0′	166°22.0′	40.2	fine sand
21	7/18/60	57°39.0′	168°37.5′	67.7	silt
25	7/19/60	57°07.7′	170°18.7′	18.3	–
26	7/20/60	56°49.0′	172°24.0′	120.7	very fine sand
27	7/21/60	58°36.0′	174°56.0′	228.6	–
28	7/22/60	59°38.0′	175°04.0′	128.0	silt
29	7/22/60	60°13.5′	174°13.5′	91.4	silt
30	7/23/60	60°41.0′	172°27.0′	51.2	silt
31	7/23/60	60°45.5′	171°34.0′	58.5	silt
32	7/23/60	60°48.0′	171°00.0′	54.8	silt
33	7/24/60	60°55.0′	169°53.0′	43.9	silt
34	7/24/60	61°10.0′	168°52.0′	32.8	very fine sand
35	7/24/60	61°43.5′	168°31.0′	34.8	silt
38	7/25/60	63°07.8′	167°33.0′	32.8	fine sand
39	7/26/60	63°40.0′	167°13.0′	59.7	very fine sand
40	7/26/60	64°08.8′	167°22.5′	29.3	fine sand
41B	7/26/60	64°00.0′	168°00.0′	32.8	fine sand
42B	7/27/60	63°21.0′	168°46.0′	16.5	silt
43	7/27/60	63°08.0′	167°11.0′	36.6	fine sand
45	7/28/60	62°54.0′	165°00.0′	20.1	silt
46	7/28/60	62°45.0′	165°22.0′	12.8	silt
47	7/28/60	63°05.5′	165°12.0′	11.0	silt
48	7/28/60	63°22.5′	165°07.0′	12.2	silt
49	7/28/60	63°37.0′	165°15.0′	22.9	silt
50	7/28/60	63°52.4′	165°15.3′	–	–
51	7/29/60	64°28.2′	165°20.0′	9.1	silt
52	7/29/60	64°00.0′	167°00.0′	32.6	very fine sand
53	7/30/60	64°44.0′	167°22.0′	33.5	fine sand
54	7/30/60	65°36.7′	168°45.0′	0–22.9	–
55	7/31/60	67°26.5′	165°45.0′	36.6	silt
56	7/31/60	67°37.1′	165°19.0′	39·0	silt
57	7/31/60	67°43.3′	164°55.0′	27.4	silt
58	8/ 1/60	70°02.0′	168°44.0′	45.7	silt
59	8/ 2/60	70°21.0′	166°22.0′	42.6	silt

TABLE 1.—*Station locations*—Continued

Station number	Date	N Latitude	W Longitude	Depth (in meters)	Sediment type based on median diameters
60	8/ 2/60	70°07.5′	164°48.5′	45.9	very fine sand
A	4/ 8/60	70°10.0′	155°29.0′	289.9	–
B	4/ 9/60	70°10.0′	155°29.0′	143.8	–
C	4/10/60	70°07.0′	156°23.0′	145.1	–
D	4/17/60	70°47.8′	157°13.0′	64.0	–
E	5/ 1/60	71°49.0′	158°50.0′	57.1	–
F	5/ 4/60	71°54.0′	159°21.0′	50.9	–
G–1	5/14/60	71°51.0′	159°44.0′	50.0	–
G–2	5/26/60	71°53.0′	160°24.0′	42.4	–
G–3	6/24/60	71°53.0′	160°24.0′	42.1	–
G–4	6/30/60	71°53.0′	160°24.0′	42.1	–
G–5	7/31/60	71°51.0′	160°20.0′	39.0	–
G–6	8/15/60	71°51.0′	160°20.0′	38.1	–
R–1	8/ 8/53	71°24′30″	156°21′50″	9.8	–
R–2	8/10/53	71°26′45″	156°13′20″	12.8	–
R–3	8/11/53	71°26′15″	156°25′00″	12.8	–
R–4	8/11/53	71°35′00″	155°33′00″	96.3	–

DISCUSSION.—A total of 67 species, 2 of which are new, are reported herein from the Bering, Chukchi, and Beaufort Seas. The most numerous species in the collection are: *Pholoe minuta, Glycinde wireni, Haploscoloplos elongatus, Cossura longocirrata, Tharyx multifilis*?, *Sternaspis scutata, Heteromastus filiformis,* and *Myriochele heeri.* The latter was the most frequently encountered species; it was particularly common at some of the stations south and east of St. Lawrence Island (see fig. 1). Principal associates with this tube-building polychaete were *Pholoe minuta* and *Haploscoloplos elongatus,* with *Glycinde wireni* and *Tharyx multifilis*? present less frequently.

In addition to the 2 new species encountered, new distributional records were established for 12 species. The northern distribution was extended for 8 species, namely, *Arctonoe pulchra, Harmothoe hartmanae, Typosyllis alternata, Micronephthys minuta, Haploscoloplos elongatus, Spiophanes bombyx, Travisia brevis,* and *Rhodine bitorquata.* Four species are newly recorded from Alaskan waters: *Naineris quadricuspida, Skardaria fragmentata, Cossura longocirrata,* and *Ophelia borealis.*

Data on the geographical and depth distribution have been included for each species only when the information is new or not included in Pettibone (1954).

Family Polynoidae

Arctonoe pulchra (Johnson)

Polynoe pulchra Johnson, 1897, p. 177.
Arctonoe pulchra.—Pettibone, 1953, pp. 61–64, pl. 30, figs. 272–280.—Hartman, 1961, p. 7.—Imajima and Hartman, 1964, p. 19.

Material: Stations 42B(1), 54(1); Bering Sea; sandy silt. Pettibone (1953) lists the hosts from which *A. pulchra* has been taken; it is not known whether or not these specimens were free living or commensal.

Distribution: *Arctonoe pulchra* was known previously from Gulf of Alaska to Cedros Islands, Lower California, Japan, and Okhotsk Sea. The northern distribution is extended herein to the Diomede Islands.

Eunoe oerstedi Malmgren

Eunoe oerstedi Malmgren, 1865, p. 61, pl. 8, fig. 3.—Pettibone, 1954, pp. 219–220, fig. 26d.—Berkeley and Berkeley, 1956, p. 234.

Material: Stations 54(1), 57(1); Bering and Chukchi Seas; silty sand.

Gattyana cirrosa (Pallas)

Aphrodita cirrosa Pallas, 1766, p. 95, pl. 8, figs. 3–6.
Gattyana cirrosa.—Hartman, 1948, p. 14.—Pettibone, 1954, pp. 226–228, fig. 26b.—Berkeley and Berkeley, 1958, p. 803.

Material: Stations 54(1), G–6(1); Chukchi Sea.

Gattyana iphionelloides (Johnson)

Harmothoe iphionelloides Johnson, 1901, pp. 391–392, pl. 1, figs. 2–7.
Gattyana iphionelloides.—Pettibone, 1953, pp. 44–45, pl. 22, figs. 194–200.

Material: Stations 54(1); Little Diomede Island.

Harmothoe hartmanae Pettibone

Harmothoe hartmanae Pettibone, 1948, pp. 412–413, fig. 1; Pettibone, 1953, pp. 36–37, pl. 17, figs. 147–154.

Material: Stations 54(1); Little Diomede Island.

Remarks: This species is known previously from three specimens from Puget Sound, Washington. *Harmothoe hartmanae* is distinguished from the cosmopolitan species *H. imbricata* chiefly on the basis of its elytra. This species may be simply a variant of *H. imbricata*, a view suggested previously by Hartman (1959).

Distribution: The northern limits are extended herein to Little Diomede Island.

Harmothoe imbricata (Linnaeus)

Aphrodita imbricata Linnaeus, 1767, p. 1084.
Harmothoe imbricata.—Hartman, 1948, p. 13.—Pettibone, 1954, pp. 220–222, figs. 26a, e.—Hartman, 1961, p. 8.

Material: Stations 35(1), 39(1), 54(21); Bering and Chukchi Seas; silty sand and sandy silt.

***Lagisca rarispina* (Sars)**

Polynoe rarispina Sars 1861, p. 60.
Lagisca rarispina (Sars) Malmgren [sic].—Moore, 1908, pp. 335–336.
Lagisca rarispina Malmgren [sic].—Berkeley and Berkeley, 1948, p. 16, figs. 18–19.
Lagisca rarispina (Sars).—Hartman, 1959, p. 85.

Material: Stations 54(10), 57(1); Bering and Chukchi Seas.

Remarks: Pettibone (1954) listed *L. rarispina* as a synonym of *Harmothoe extenuata* (Grube). Hartman (1959) transferred this latter species to the genus *Lagisca* and listed these two as separate species. The presence of long rod-shaped papillae on the elytrae of *L. rarispina*, lacking on *L. extenuata*, is believed to be of sufficient difference to retain these as separate species.

Distribution: Known from Washington to Chukchi Sea, Hudson Bay, and North Atlantic to depths of 420 meters.

Family Sigalionidae

***Pholoe minuta* (Fabricius)**

Aphrodita minuta Fabricius, 1780, p. 314.
Pholoe minuta.—Pettibone, 1954, pp. 230–231, fig. 26f.

Material: Stations 5(10), 14(4), 15(2), 19(25), 21(2), 33(2), 34(14), 35(7), 39(1), 41B(3), 43(6), 45(8), 46(2), 47(2), 48(4), 49(3), 50(5), 52(8), 53(9), 56(1), 57(4), 60(1), G–1(1), G–5(2); Bering and Chukchi Seas; sandy silt or silty sand.

Family Phyllodocidae

***Anaitides groenlandica* (Oersted)**

Phyllodoce groenlandica Oersted, 1843, p. 192.
Phyllodoce (*Anaitides*) *groenlandica*.—Pettibone, 1954, pp. 236–238, figs. 27d, i.—Berkeley and Berkeley, 1956, p. 235.
Anaitides groenlandica.—Hartman, 1948, p. 19.

Material: Stations 50(1), R–3(1); Bering and Beaufort Seas.

Distribution: Northern Hemisphere in depths to 54.8 meters.

***Anaitides maculata* (Linnaeus)**

Nereis maculata Linnaeus, 1767, p. 1086.
Phyllodoce (*Anaitides*) *maculata*.—Berkeley and Berkeley, 1948, p. 46, fig. 67.

Material: Stations 25(5), 35(1), 48(1), 49(14), 54(1); Bering Sea; sandy silt.

***Eteone longa* (Fabricius)**

Nereis longa Fabricius, 1780, p. 300.
Eteone longa.—Berkeley and Berkeley, 1948, p. 41, figs. 57, 58.—Pettibone, 1954, p. 234, fig. 27h.

Material: Stations 5(2), 21(1), 27(1), 34(1), 35(4), 42B(1), 50(1), 52(1), 54(2), 58(1), 59(2), 60(2), G–1(1), G–4(1); Bering and Chukchi Seas.

Family Syllidae

***Autolytus prismaticus* (Müller)**

Nereis prismatica Müller, *in* Fabricius, 1780, p. 302.
Autolytus prismaticus (Fabricius) [sic].—Pettibone, 1954, pp. 249–252, figs. 29a–b.

Material: Stations 54(2); Little Diomede Island.

***Exogone naidina* Oersted**

Exogone naidina Oersted, 1845, p. 20, pl. 2.—Pettibone, 1954, p. 258, fig. 281.

Material: Station 25(1); Bering Sea.

***Typosyllis alternata* (Moore)**

Syllis alternata Moore, 1908, pp. 323–325, figs. a–f.
Typosyllis alternata.—Hartman, 1948, p. 21.

Material: Station 57(26); Chukchi Sea; silty sand.

Distribution: This species was known from western Canada south to western Mexico, in shallow waters. The distribution is extended herein into the Chukchi Sea.

***Typosyllis fasciata* (Malmgren)**

Syllis fasciata Malmgren, 1867, p. 161.
Syllis (*Typosyllis*) *fasciata*.—Pettibone, 1954, pp. 254–255, figs. 28c–e.

Material: Station 57(1); Chukchi Sea; silty sand.

Family Nereidae

***Nereis pelagica* Linnaeus**

Nereis pelagica Linnaeus, 1761, p. 508.—Hartman, 1948, p. 26.—Pettibone, 1954, pp. 264–265, figs. 30 a, b.

Material: Station 42B(1); Bering Sea; sandy silt.

Family Sphaerodoridae

***Sphaerodorum minutum* (Webster and Benedict)**

Ephesia minuta Webster and Benedict 1887, p. 728, pl. 4, figs. 64–66.—Chamberlin, 1920, p. 13B.
Sphaerodorum minutum.—Berkeley and Berkeley, 1948, pp. 27–28, fig. 34.—Hartman, 1961, p. 80.

Material: Station G–4(1); Chukchi Sea.

Distribution: In shallow depths from Arctic Ocean, Alaska to southern California, North Atlantic and New England.

Family Nephtyidae

Micronephthys minuta (Théel)

Nephthys [sic] *minuta* Théel, 1879, pp. 28–31, pl. 2, fig. 18.—Uschakov, 1955, p. 217, pl. 68, fig. Zh.
Micronephthys minuta.—Friedrich, 1939, p. 123.—Hartman, 1950, p. 130.

Material: Stations 7(2), 14(1), 21(2), 33(5), 35(1), 39(1), 41B(1), 42B(1), 43(1), 45(1), 49(2), 50(1), 52(2), 55(2), 56(1), 59(1), G–1(3), G–5(2), B(1); sandy silt or silty sand; 16.5 to 143.8 meters.

Distribution: Previously known from the Russian Arctic Ocean; this report extends the distribution of *M. minuta* into Bering, Chukchi, and Beaufort Seas.

Nephtys ciliata (Müller)

Nereis ciliata Müller, 1789, p. 14, pl. 89, figs. 1–4.
Nephtys ciliata.—Hartman, 1950, p. 95.—Pettibone, 1954, p. 270, fig. 30n.

Material; Stations 5(1), 12(1), 15(1); Bering Sea; silty sand or sandy silt.

Nephtys longosetosa Oersted

Nephtys longosetosa Oersted, 1843, p. 195, pl. 6, figs. 75–76.—Berkeley and Berkeley, 1948, p. 52, fig. 76.—Pettibone, 1954, p. 268, fig. 30l.

Material: Stations 13(1), 17(2), 30(1), R–1(1); Bering and Beaufort Seas; sandy silt.

Nephtys paradoxa Malm

Nephthys [sic] *paradoxa* Malm, 1874, p. 78, pl. 1, fig. 2.
Nephtys paradoxa.—Hartman, 1950, p. 111.—Pettibone, 1954, pp. 271–272, figs. 30j–k.

Material: Station G–5(1); Chukchi Sea.

Family Goniadidae

Glycinde wireni Arwidsson

Glycinde wireni Arwidsson, 1899, pp. 53–54, pl. 3, figs. 48–49.—Pettibone, 1954, pp. 274–275, figs. 31e–g.—Levenstein, 1960, p. 116.

Material: Stations 5(88), 7(1), 14(1), 15(1), 17(1), 19(3), 21(1), 34(2), 35(5), 40(3), 41B(2), 42B(1), 43(3), 45(8), 46(22), 47(15), 50(10), 52(13), 53(5), 55(2), 56(1), 57(5), 59(1), 60(1), G–5(1); Bering and Chuckchi Seas; silty sand or sandy silts.

Family Lumbrineridae

Lumbrineris fragilis (Müller)

Lumbricus fragilis Müller, 1776, p. 216.
Lumbrineris fragilis.—Pettibone, 1954, pp. 275–276, figs. 31h–n.

Material: Stations 26(1), 28(1), 57(5), G–2(1), G–3(1), G–6(1), B(6); Bering, Chuckchi, and Beaufort Seas; silty sand or sandy silt.

Family Orbiniidae

Haploscoloplos elongatus (Johnson)

Scoloplos elongata Johnson, 1901, pp. 412–413, pl. 10, figs. 105–110.
Haploscoloplos elongatus.—Hartman, 1957, pp. 273–275, pl. 26, figs. 1–11.—Berkeley and Berkeley, 1956, pp. 802–4.—Hartman, 1961, p. 26.

Material: Stations 5(42), 8(1), 28(3), 32(1), 33(10), 34(8), 35(6), 39(5), 40(1), 42B(47), 43(7), 45(5), 46(2), 47(2), 48(6), 49(14), 50(3), 52(18), 55(3), 57(5), 58(1), 59(1), 60(17), G–6(1), B(3), C(1), R–2(1), R–3(2); sandy silt or silty sand.

Remarks: Recently Imajima (1963) identified, with reservation, two specimens from Okhotsk Sea as belonging to this species. These specimens lacked furcate setae in abdominal notopodia.

Distribution: *Haploscoloplos elongatus* was known previously from the Icy Cape, Alaska, south to western Mexico. The distribution of this species is extended herein into the Beaufort Sea.

Naineris quadricuspida (Fabricius)

Nais quadricuspida Fabricius, 1780, p. 315.
Naineris quadricuspida.—Fauvel, 1927, pp. 23–24, figs. 8a–g.—Uschakov, 1955, p. 260, pl. 37E, fig. Zh.

Material: Stations 54(1), Little Diomede Island.

Distribution: This species is known from the North Atlantic, Arctic, and Russian Pacific Oceans. Hartman (1961) found a single individual off Santa Catalina Island that she stated agrees most nearly with *N. quadricuspida*. This report is the first for this species in Alaska.

Scoloplos armiger (Müller)

Lumbricus armiger Müller, 1776, p. 215.
Scoloplos armiger.—Pettibone, 1954, pp. 78–280, figs. 32a–c.—Hartman, 1957, pp. 280–282, pl. 29, figs. 1–7.

Material: Stations 15(3), 18(1), 19(1), 21(3), 26(1), 41B(4), 45(1), 52(1); Bering Sea; silty sand or sandy silt.

Family Apistobranchidae

Skardaria fragmentata Wesenberg-Lund

Skardaria fragmentata Wesenberg-Lund, 1951, pp. 59–65, figs. 1–4.—Hartman, 1961, pp. 88–89.

Material: Stations 5(1), 19(14), R–3(1); sand; 12.8 to 67.1 meters depth.

Distribution: This species is known only from the two reports cited above and the present findings. The type locality is Iceland in six meters. Hartman (1961) reported it from southern California.

Family Paraonidae

Aricidea suecica? Eliason

Aricidea suecica Eliason, 1920, pp. 52–55, figs. 14–15.

Material: Station 19(1). An anterior fragment comes from Bering Sea from fine sand in 132 feet.

Remarks: Only an anterior fragment present in these collections. It resembles *A. suecica* Eliason as reported by Hartman (1948) as *A. heteroseta* Hartman (see Hartman, 1957, pp. 318–319), but since this specimen lacked a posterior end, positive identification could not be made. *Aricidea suecica* is known from Denmark, British Isles, southern Alaska, and possibly (fide Hartman, 1957) western Canada and Russian Arctic localities.

Paraonis gracilis (Tauber)

Aonides gracilis Tauber, 1879, p. 115.
Paraonis gracilis.—Uschakov, 1955, p. 286, pl. 103, figs. A, B.—Hartman, 1957, pp. 330–331, pl. 44, figs. 4–5.

Material: Stations 5(2), 17(1), 35(6), 43(1), 50(1), 57(1), G–4(1); Bering and Chukchi Seas; sandy silt or silty sand.

Distribution: Widely distributed from the Arctic to the Antarctic in the Atlantic, the Russian Pacific, and the Bering and Chukchi Seas.

Family Magelonidae

Magelona alata, new species

FIGURE 2

Material: Stations 5(4), 7(1), 15(1), 17(1), 19(1), 34(1), 35(2), 49(1), 50(4), 57(1), and 60(3); Bering Sea and Beaufort Seas.

Description: Three of 24 specimens complete and in poor condition. Length 4–5 mm. with 22–27 setigerous segments. Some incomplete specimens 4 to 20 mm. in length with 7–65 setigerous segments. Holotype incomplete, 12 mm. long with 17 segments. One specimen from Station 50 with brown pigment laterally on segments 8–17; all other specimens colorless. Pygidium lacking anal processes.

Prostomium broad with frontal horns (fig. 2*a*); with crescent-shaped cephalic ridges. Two palpi generally present, densely papillated.

Parapodia of segments 1–8 similar (fig. 2*b*), notopodium with small presetal lobe, well-developed foliaceous postsetal lobe. Dorsal cirrus becoming progressively smaller towards posterior thoracic region. Neuropodial presetal lobe small, postsetal lobe foliaceous but becoming small in posterior thoracic region. Single-winged capillary setae (fig. 2*c*), numbering about 20 per each lobe of parapodium, present through segment 9. Segment 9 constricted.

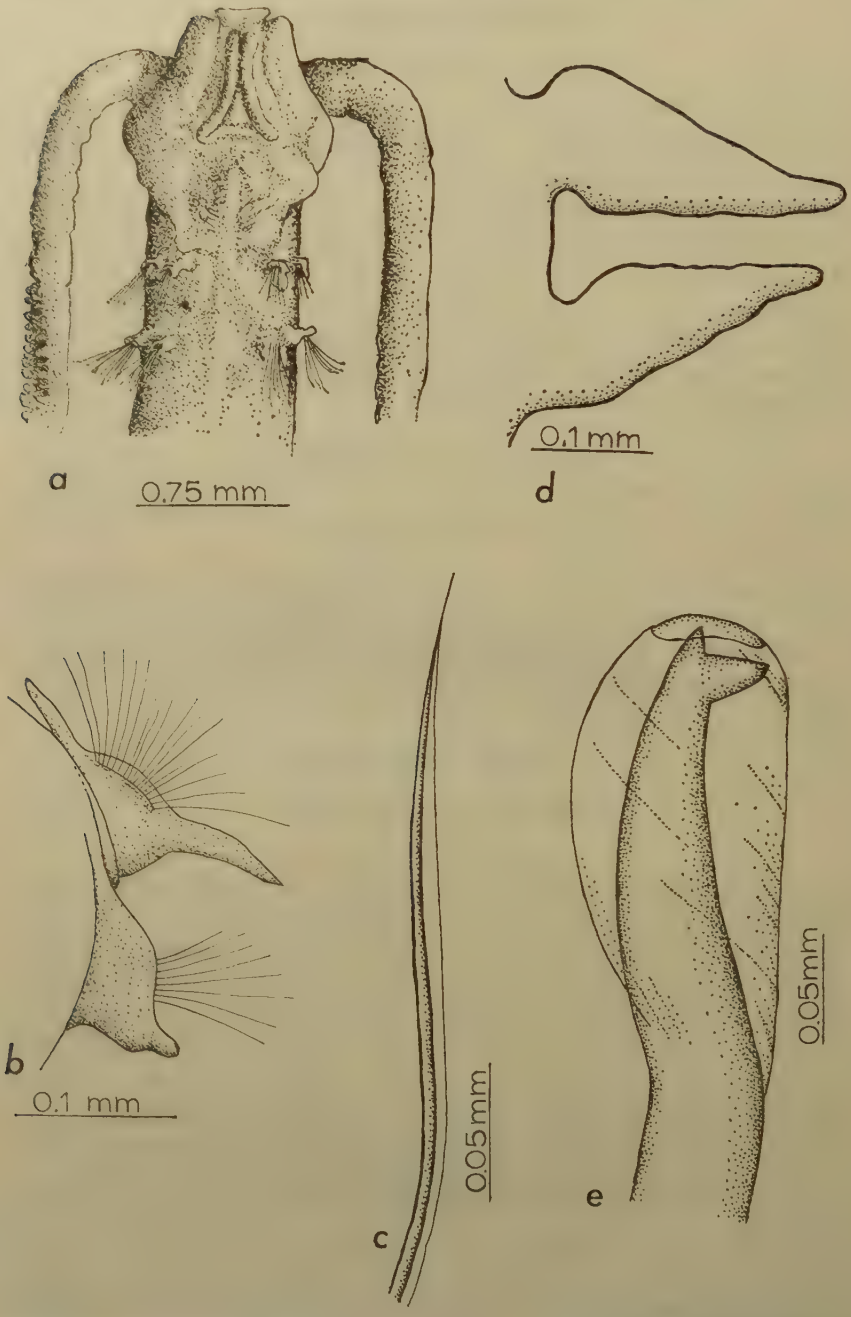

FIGURE 2.—*Magelona alata*, new species: *a*, anterior end; *b*, thoracic parapodium; *c*, thoracic capillary seta; *d*, abdominal parapodium; *e*, abdominal hooded hook.

Abdominal postsetal lobes of notopodium and neuropodium foliaceous (fig. 2*d*). Dorsal cirrus lacking. Setae all hooded hooks consisting of two teeth at nearly right angles (fig. 2*e*), numbering about 12 per each lobe of parapodium.

Remarks: Twenty-one species have been described previously for the genus *Magelona*. Jones (1963) recently listed the known species and included a key to these species. *Magelona alata* belongs to that group of nine species possessing bidentate hooded hooks in the posterior region. This group can be divided further by the presence or absence of frontal horns. *Magelona alata* has frontal horns as do *M. annulata* Hartman-Schröder (1962), *M. phyllisae* Jones (1963), *M. longicornis* Johnson (1901), *M. pacifica* Monro (1933), and *M. cerae* Hartman and Reish (1950). *Magelona alata*, *M. pacifica*, and *M. phyllisae* all have single-winged capillary setae through segment 9. These three species can be distinguished by the different degree of development of the parapodial lobes.

Ecology: *Magelona alata* was taken in depths of 11–67.1 meters, more frequently from silts than from fine and very fine sands.

Type locality: Station 5 (fig. 1), Bristol Bay area of Bering Sea, 56°54′ north latitude and 163°45′ west longitude at a depth of 67.1 meters.

Type material: Holotype, three paratypes, and additional specimens have been deposited in the U.S. National Museum.

Family Spionidae

Prionospio malmgreni Claparède

Prionospio malmgreni Claparède, 1870, p. 73.—Hartman, 1948, p. 36; 1961, p. 29.—Pettibone, 1954, pp. 282–284, figs. 32i–k.

Material: Stations 21(1), 43(1), G–1(1), G–5(1), B(5), R-4(1); Bering, Chukchi, and Beaufort Seas; fine sand or silt.

Spio filicornis (Müller)

Nereis filicornis Müller, 1776, p. 218.
Spio filicornis.—Hartman, 1941, p. 293.—Pettibone, 1954, pp. 284–285, figs. f–h.

Material: Stations 5(1); Bering Sea; silt.

Spiophanes bombyx (Claparède)

Spio bombyx. Claparède, 1870, p. 485.
Spiophanes bombyx.—Berkeley and Berkeley, 1952, pp. 22–24, figs. 42–43.—Hartman, 1961, p. 50.

Material: Stations 15(1), 34(2), 53(1); Beaufort Sea; fine or very fine sand.

Distribution: Known previously from the Mediterranean Sea, Vancouver Island south to California and Japan. These four speci-

mens in Bering Sea extend its northward distribution in the Western Hemisphere.

Family Cirratulidae

Chaetozone setosa Malmgren

Chaetozone setosa Malmgren, 1867, p. 96, pl. 14, fig. 84.—Pettibone, 1954, pp. 287–288, fig. 33d.—Hartman, 1961, p. 109.

Material: Stations G–5(3); Chukchi Sea.

Cirratulus cirratus (Müller)

Lumbricus cirratus Müller, 1776, p. 214.
Cirratulus cirratus.—Pettibone, 1954, pp. 286–287, figs. 33a–c.—Hartman, 1961, p. 105.

Material: Stations 54(4); Little Diomede Island.

Cossura longocirrata Webster and Benedict

Cossura longocirrata Webster and Benedict, 1887, p. 743.—Uschakov, 1955, p. 305, pl. 112, fig. Zh.—Berkeley and Berkeley, 1956, pp. 544–545.

Material: Stations 5(69), 33(1), 42B(8), 43(1), 52(12), 55(8), 56(23), 59(10), 60(3), G–1(2); Bering and Beaufort Seas; silty or very fine sands.

Distribution: This species was reported originally from Maine; subsequently it has been found in North Atlantic, Russian Pacific, and the state of Washington. These reports from the Bering and Chukchi Seas represent new localities for this species.

Tharyx multifilis? Moore

Tharyx multifilis Moore, 1909, pp. 267–268, pl. 9, fig. 43.—Berkeley and Berkeley, 1952, pp. 34–35, fig. 62.

Material: Stations 5(38), 8(1), 26(2), 28(1), 29(1), 32(1), 33(5), 35(5), 43(6), 45(3), 46(11), 47(14), 49(21), 50(11), 52(6), 55(2), 56(1), 57(2), 58(3), 59(7), 60(2), G–3(3), G–4(2), G–5(2), R–1(3), R–3(1).

Ecology: This polychaete was found chiefly from the stations with silts; a few specimens were taken from either fine or very fine sandy bottoms.

Remarks: Morphologically and ecologically these specimens resemble *T. multifilis* with the exception of the small size (10–15 mm.) of the present material. These specimens lack the dark-colored cardiac body as characterized by the smaller and related species *T. parvus* Berkeley. Because of the size difference and because of the few distinguishing characters in this genus, I am referring this material questionably to *T. multifilis*.

Distribution: Vancouver Island to southern California.

Family Flabelligeridae

Brada villosa (Rathke)

Siphonostoma villosum Rathke, 1843, p. 215, pl. 11, figs. 11–12.
Brada villosa.—Berkeley and Berkeley, 1952, p. 7, fig. 5.—Pettibone, 1954, pp. 290–292.

Material: Stations 31(3), 49(1), R–1(1); Bering and Beaufort Seas; silt.

Family Scalibregmidae

Scalibregma inflatum Rathke

Scalibregma inflatum Rathke, 1843, p. 40.—Hartman, 1948, p. 40.—Pettibone, 1954, pp. 293–294, figs. 33i–k.

Material: Stations 33(1), 51(1), 58(1), 59(1), R–2(1); Bering, Chukchi, and Beaufort Seas; silt.

Family Opheliidae

Ammotrypane aulogaster Rathke

Ammotrypane aulogaster Rathke, 1843, p. 199.—Berkeley and Berkeley, 1952, p. 92, figs. 186–187.—Uschakov, 1955, pp. 320–321, pl. 118, figs. A–L.—Hartman, p. 33.

Material: Stations 5(2), 34(1), 41(1), 48(1); Bering Sea; silt or very fine sands.

Distribution: Cosmopolitan, in moderate depths. This is the first report of *A. aulogaster* from the Bering Sea.

Ophelia borealis Quatrefages

Ophelia borealis Quatrefages, 1865, p. 273.—Tebble, 1952, pp. 553–560, figs. 1–3; 1953, p. 362.

Material: Stations 48(1); silt.

Distribution: Previously known from Greenland, North Sea, and Irish Sea; this report extends its distribution into the Bering Sea.

Travisia brevis Moore

Travisia brevis Moore, 1923, pp. 220–221.—Berkeley and Berkeley, 1952, pp. 90–91, fig. 183.—Hartman, 1961, p. 34.—Imajima, 1963, p. 361.

Material: Stations 26(2), 40(2), C(1); very fine sands.

Distribution: This species is known from Okhotsk, Bering, and Beaufort Seas and from Humpback, Alaska, to southern California.

Family Sternaspidae

Sternaspis scutata (Vanzani)

Thalassema scutata Ranzani, 1817, p. 1457, pl. 11, figs. 10–13.
Sternaspis scutata.—Pettibone, 1954, pp. 309–310, figs. 35a–b.

Material: Stations 5(5), 17(1), 35(1), 47(1), 48(1), 49(27), 50(4),

52(6), 55(2), 56(1), 57(1), B(5), R–2(11), R–3(57); Bering, Chukchi, and Beaufort Seas; sandy silt, silty sands, or silts.

Family Capitellidae

Capitella capitata (Fabricius)

Lumbricus capitatus Fabricius, 1780, p. 279.
Capitella capitata.—Pettibone, 1954, pp. 298–299, figs. 33r–u.

Material: Stations 54(5), 2(1), 6(1); Little Diomede Island and Chukchi Sea.

Remarks: One specimen collected at Little Diomede Island on July 30, 1956, was incubating eggs within its tube.

Heteromastus filiformis (Claparède)

Capitella filiformis Claparède, 1864, p. 509, pl. 4, fig. 10.
Heteromastus filiformis.—Hartman, 1948, p. 41; 1951a, p. 102.—Uschakov, 1955, p. 327, pl. 121, fig. D.—Levenstein, 1960, p. 109.

Material: Stations 5(12), 30(1), 34(2), 35(2), 47(7), 48(6), 50(1), 52(4), 53(2), 55(3), 56(4), 57(3), 59(9), 60(8); Bering and Chukchi Seas; silts.

Distribution: Widely distributed in the Northern Hemisphere; previously it has been reported from the West Bering Sea by Levenstein. This is the first report of *H. filiformis* from Chukchi Sea.

Family Maldinidae

Maldane sarsi Malmgren

Maldane sarsi Malmgren, 1865, p. 188.—Pettibone, 1954, pp. 303–304, figs. 34g–h.—Hartman, 1961, p. 37.

Material: Stations 55(9), 56(73), 60(1), G–3(1), G–5(1), G–6(2), B(5); Chukchi and Beaufort Seas; silts.

Nicomache lumbricalis (Fabricius)

Sabella lumbricalis Fabricius, 1780, p. 374.
Nicomache lumbricalis.—Berkeley and Berkeley, 1952, pp. 54–55, figs. 111–112.—Pettibone, 1954, pp. 305–306, figs. 34i–j.

Material: Stations 59(2), B(1); Chukchi and Beaufort Seas; silts.

Petaloproctus tenuis (Théel)

Maldane tenuis Théel, 1879, p. 57.
Petaloproctus tenuis.—Berkeley and Berkeley, 1952, pp. 55–56, fig. 113.—Pettibone, 1954, pp. 306–307, figs. 34l–m.—Uschakov, 1955, p. 339.—Hartman, 1961, p. 37.

Material: Station R–4(1); Beaufort Sea.

Praxillella praetermissa (Malmgren)

Praxilla praetermissa Malmgren, 1865, p. 191.
Praxillella praetermissa.—Pettibone, 1954, p. 303, figs. 34b–f.—Uschakov, 1955, p. 341.—Berkeley and Berkeley, 1956, p. 238.—Levenstein, 1960, p. 121.

Material: Stations 5(1), 7(1), 21(1), 27(1), 34(1), 35(2), 40(1), 41B(1), 49(1), 50(1), 52(2), 58(1); Bering and Chukchi Seas; variety of substrate types.

Rhodine bitorquata Moore

Rhodine bitorquata Moore, 1923, pp. 223–225, pl. 18, fig. 30.—Berkeley and Berkeley, 1952, pp. 52–53, figs. 107–108.—Hartman, 1961, p. 37.

Material: Stations 29(2), 39(1), 40(3), 43(3), 52(2), 56(8), 57(3); variety of substrate types.

Distribution: This species was known previously from Vancouver Island to southern California. The discovery of *R. bitorquata* in the Bering and Chukchi Seas extends its northern distribution.

Family Oweniidae

Myriochele heeri Malmgren

Myriochele heeri Malmgren, 1867, p. 211.—Fauvel, 1927, pp. 204–205, fig. 71h–m.—Berkeley and Berkeley, 1956, p. 238.

Material: Stations 5(1), 26(2), 27(1), 28(3), 34(495), 35(971), 39(1), 43(189), 45(677), 46(7), 48(98), 50(501), 52(2), 53(10), 57(3); Bering Sea; silts, fine and very fine sands.

Distribution: Widely distributed throughout the colder waters of the Northern Hemisphere.

Family Sabellariidae

Idanthyrsus ornamentatus Chamberlin

Idanthyrsus ornamentatus Chamberlin, 1919, pp. 262–263, pl. 3, figs. 2–5.—Hartman, 1944, p. 337, pl. 31, fig. 34.

Material: Stations 42B(2), 49(3), 52(1), 57(4); Bering Sea; silts or very fine sands.

Remarks: Okuda (1938) regarded *I. ornamentatus* Chamberlin as a synonym of *I. armatus*. This viewpoint was followed by Pettibone (1954) but not Hartman (1944). The present material from the Bering and Chukchi Seas agrees with the account by Hartman. Detailed comparisons of these two species from various localities are warranted to determine whether or not one or two species are involved.

Distribution: Given by Hartman (1948) as northern California to Alaska.

Family Pectinariidae

Cistenides granulata (Linnaeus)

Sabella granulata Linnaeus, 1767, p. 1268.
Pectinaria (*Cistenides*) *granulata* (Linnaeus).—Pettibone, 1954, pp. 312–314, figs. 35i–k.

Material: Stations 57(1), R–2(10), R–3(5); Chukchi and Beaufort Seas; silts.

Family Ampharetidae

Ampharete acutifrons (Grube)

Amphicteis acutifrons Grube, 1860, p. 109, pl. 5, fig. 6.
Ampharete acutifrons.—Pettibone, 1954, pp. 316–317, figs. 36b–d.—Uschakov, 1955, p. 366, pl. 136, figs. A–U.—Hartman, 1961, p. 39.

Material: Stations 46(2), 57(3), G–6(4), B(1); Bering and Chukchi Seas; silt.

Asabellides sibirica (Wirén)

Sabellides sibirica Wirén, 1883, p. 418.
Asabellides sibirica.—Pettibone, 1954, p. 318, fig. 36e.—Uschakov, 1955, p. 371, pl. 137, figs. H–T.—Berkeley and Berkeley, 1956, pp. 240–241.

Material: Stations 5(1), 46(2), B(2), R–2(2), R–3(2); Bering, Chukchi, and Beaufort Seas; silt.

Family Terebellidae

Amphitrite cirrata Müller

Amphitrite cirrata Müller, 1776, p. 188.—Berkeley and Berkeley, 1952, p. 86, fig. 175.—Pettibone, 1954, pp. 321–322, figs. 36g–h.

Material: Stations 54(2); Little Diomede Island.

Lysilla loveni Malmgren

Lysilla loveni Malmgren, 1866, p. 393.—Fauvel, 1927, pp. 286–287, figs. 99f–i.—Uschakov, 1955, p. 403, pl. 150, fig. G.

Material: Stations G–5(1); Chukchi Sea.

Distribution: Arctic Ocean, North Atlantic, Chukchi Sea, and Sea of Japan; shallow water to 338.9 meters.

Nicolea zostericola (Oersted)

Terebella zostericola Oersted *in* Grube, 1860, p. 98.
Nicolea zostericola.—Fauvel, 1927, pp. 261–262, figs. 90g–n.—Berkeley and Berkeley, 1952, pp. 87–88, figs. 177–178.—Uschakov, 1955, p. 390, pl. 146, figs. B, G.

Material: Stations 54(1): Little Diomede Island.

Remarks: Fauvel (1927) separated *N. zostericola* from *N. venustula* on the basis of 15 thoracic segments in the former and 17 in the latter.

Wesenberg-Lund (1950) regarded *N. zostericola* as a synonym of *N. venustula* because specimens from a single locality possessed 15–17 thoracic segments. Pettibone (1954) concurred with this. Herpin (1925, *in* Wesenberg-Lund, 1950) found a difference in egg-laying habits between these two. I believe additional data, especially developmental, are needed before this question can be resolved. I am retaining the use of *N. zostericola* to indicate the specimen from Little Diomede Island possessed 15 thoracic segments.

Distribution: Arctic Ocean, North Atlantic Ocean, Little Diomede Island, British Columbia, Russian Pacific.

Thelepus cincinnatus (Fabricius)

Amphitrite cincinnata Fabricius, 1780, p. 286.
Thelepus cincinnatus.—Pettibone, 1954, pp. 327–328, fig. 37d.

Material: Station 57(1); Chukchi Sea; silt.

Family Trichobranchidae

Terebellides stroemi Sars

Terebellides stroemi Sars, 1835, p. 48.—Berkeley and Berkeley, 1952, pp. 75–76, figs. 152–153.—Pettibone, 1954, pp. 330–332, figs. 37j–m.—Reish, 1959, p. 39.—Hartman, 1960, p. 162.

Material: Stations 35(1), 41B(1), 43(1), 45(1), 57(4), 58(2), 60(1), G-4(1), G–5(1), R–3(1); Bering, Chukchi, and Beaufort Seas; variety of substrate types.

Family Sabellidae

Chone duneri Malmgren

Chone duneri Malmgren, 1867, p. 116, pl. 13, fig. 75.—Pettibone, 1954, p. 339, figs. 39k–l.—Uschakov, 1955, p. 418.

Material: Stations 42B(1); Bering Sea; silt.

Chone infundibuliformis Kröyer

Chone infundibuliformis Kröyer, 1856, p. 33.—Berkeley and Berkeley, 1952, p. 123, figs. 252–253.—Pettibone, 1954, pp. 338–339, figs. 39a–j.—Hartman, 1961, p. 42.

Material: Stations 35(14); Bering Sea; very fine sand.

Euchone analis (Kröyer)

Sabella analis Kröyer, 1856, p. 17.—Hartman, 1951b, p. 381.—Pettibone, 1954, pp. 339–340, figs. 39 m–n.

Material: Station 35(1); Bering Sea; silt.

Euchone trisegmentata, new species

FIGURE 3

Material: Station 5(7).

Description: All specimens complete, measured 5–7 mm. long, including the tentacles, and 0.3 mm. wide. All have 8 thoracic and 9 abdominal segments; the last 3 abdominal segments comprise the anal depression (fig. 3*a*). Two specimens contained ova in the coelom. Branchial crown with 3 pinnate radioles per side, each radiole with numerous filaments and united by a membrane for ⅓ of their length. Collar little developed dorsally but is produced centrally into two lobes.

Thoracic notopodia composed of superior single-winged capillary setae (fig. 4*b*) and inferior subspatulate setae (fig. 4*c*). Thoracic neuropodial long-handled uncini provided with a large tooth and six smaller ones (fig. 4*d*).

Anterior abdominal notopodia with acicular hooks, each with a large tooth and nine smaller teeth (fig. 4*e*). Setae of neuropodium and anal depression region are simple capillary ones.

Remarks: Ten species of the genus *Euchone* are known from the Pacific Ocean. *Euchone trisegmentata* comes closest to *E. rosea* Langerhans. Both species are the smallest known members of the genus and each have only 17 setigerous segments, the fewest number known; however, there are 4 segments to the anal depression in *E. rosea* and only 3 in *E. trisegmentata*. There are 5 radioles per side in *E. rosea* and only 3 in *E. trisegmentata*. The types of setae are similar in both species but vary in shape and in the number of secondary teeth in the long-handled uncini and acicular hooks.

Ecology: *Euchone trisegmentata* was taken from a substrate composed of silts at a depth of 67.1 meters. Sixteen additional species of polychaetes were present in this quantitative sample. The dominant species were *Glycinde wireni* (88 specimens), *Cossura longocirrata* (69), *Haploscoloplos elongatus* (42), and *Tharyx multifilis*? (38).

Type locality: Station 5 (fig. 1), Bristol Bay area of Bering Sea, 56°54′ north latitude and 163°45′ west longitude at a depth of 67.1 meters.

Type material: The holotype and six paratypes have been deposited in the U.S. National Museum.

Potamilla neglecta (Sars)

Sabella neglecta Sars, 1851, p. 203.

Potamilla neglecta.—Hartman, 1948, p. 46.—Wesenberg-Lund, 1950, pp. 56–57 pl. 10, figs. 47–48.—Berkeley and Berkeley, 1952, p. 116, fig. 238.—Pettibone 1954, pp. 335–336, figs. 38j–n.—Uschakov, 1955, p. 409.

Material: Stations 57(20), R–3(1); Chukchi and Beaufort Seas.

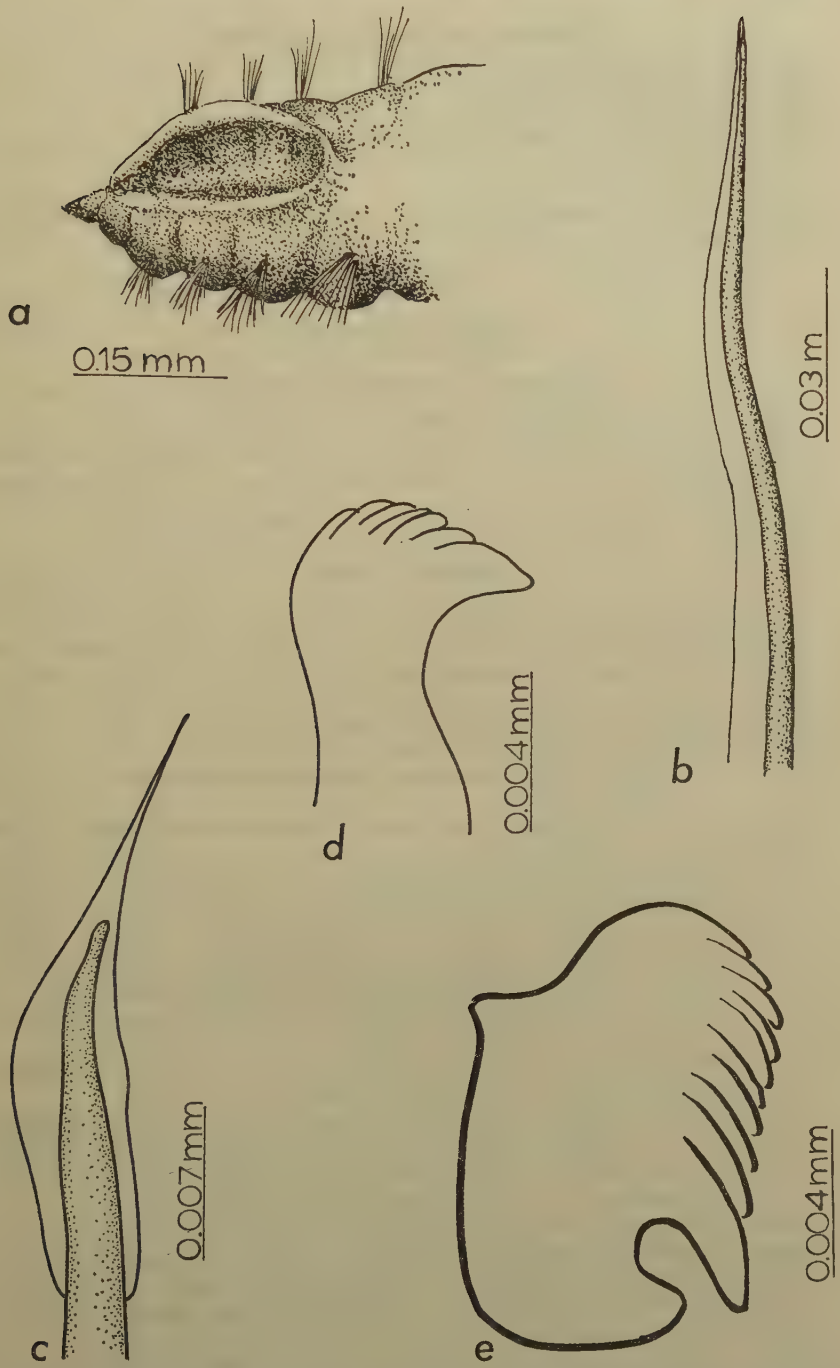

FIGURE 3.—*Euchone trisegmentata*, new species: *a*, posterior end; *b*, thoracic notopodial capillary seta; *c*, thoracic notopodial subspatulate seta; *d*, thoracic neuropodial uncinus; *e*, abdominal notopodial avicular hooks.

***Pseudopotamilla reniformis* (Müller)**

Amphitrite reniformis Müller, 1771, p. 194.
Sabella reniformis Leukart [sic], 1849, p. 183, pl. 3, fig. 8.
Potamilla reniformis (Müller).—Wesenberg-Lund, 1950, p. 57.
Pseudopotamilla reniformis (Leuckart) [sic].—Berkeley and Berkeley, 1952, pp. 116–117, fig. 239.
Potamilla reniformis (Leuckart) [sic].—Pettibone, 1954, pp. 336–337, figs. 30o–u.
Pseudopotamilla reniformis (Müller).—Hartman, 1945, p. 47.

Material: Station 57(1); Chukchi Sea; silt.

Family Serpulidae

***Dexiospira spirillum* (Linnaeus)**

Serpula spirillum Linnaeus, 1758, p. 785.
Spirorbis (*Dexiospira*) *spirillum*.—Berkeley and Berkeley, 1952, p. 133, figs. 272–274.—Pettibone, 1954, pp. 344–345, figs. 39u–x.

Material: Station 54(4); Little Diomede Island.

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